

EXCAVATION OF AN "UNDEFENDED" SITE, N38/37, ON MOTUTAPU ISLAND, NEW ZEALAND

JANET M. DAVIDSON
AUCKLAND INSTITUTE AND MUSEUM

Abstract. N38/37, an undefended site on Motutapu Island, was excavated in the 1967-8 season. Structural and artifactual evidence indicated several occupations of an undefended village, probably belonging to a Motutapu Aspect of the Early Maori Phase.

The site survey in 1963 led to the recording on Motutapu of a large number of "undefended" sites indicated in the field only by slight depressions in the ground with a more luxuriant growth of grass at certain times of the year. These ranged in size from single pits, through groups of two, three or four, to extensive areas of terracing. While some sites could clearly be seen to be pits, others were so vague in their definition that it was sometimes difficult to be confident that they were sites at all. An initial aim of the excavation season in 1967-68, therefore, was to test one or more of these poorly defined sites to determine what subterranean features were causing the field evidence so widely recorded on the island.

It was hoped that the presence of pits and/or surface house structures might be revealed, and a contribution made towards the definition of domestic or communal units of settlement. The problem of interpreting pits as sunken houses or as food stores was still being hotly debated, as was the validity or usefulness of pits as artifacts which could be subjected to typological analysis. Groube's (1965) discussion of settlement patterns had demonstrated the need for excavation of hamlets or undefended settlements, particularly those of Classic Maori age, and a better definition of domestic units for both Archaic and Classic phases. The large number of undefended sites on Motutapu appeared to offer a suitable field of enquiry.

The other major reason for choosing a site on Motutapu related to theoretical considerations of a different kind. A major and continuing consideration of New Zealand archaeologists is the attempt to document the changes which must have taken place from Archaic to Classic Maori phases (Golson 1959, Green 1963a). Excavations previously conducted on Motutapu had apparently demonstrated a continuity in Archaic material culture until the 17th century — far later than was expected for the Auckland area.

How did the Archaic working floors relate to the numerous pit and terrace sites on the island? Both Golson and Green had tended to regard Motutapu and perhaps other gulf islands as a special case, in which an Archaic material culture and (implicitly) economy lingered on after a presumed change to full Classic Maori culture on the Auckland Isthmus. Neither writer, however, had attempted to speculate on the relationship of the excavated sites to the other forms of field evidence occurring

on the island. There appeared to be two main alternatives; either the pit and terrace sites were later, and reflected a late intrusion of Classic Maori on to the island, replacing the Archaic phase, or the pit and terrace sites were contemporary at least with the upper layers of the beach middens and represented different components of the same phase and aspect.

The aims of the excavations accordingly were two-fold; to identify the structures underlying the visible field evidence and uncover the lay-out and if possible the function of one or more undefended sites; and to establish the cultural and temporal relationships between these sites and the beach middens previously excavated. These enquiries were seen as part of a continuing programme of investigation of Auckland prehistory.



FIG. 1. Aerial photograph of Station Bay, Motutapu Island, showing the position of recorded archaeological sites. Approximate scale: 1 inch = 14 chains (1 cm = 111 m).
Reproduced by courtesy of the Lands and Survey Department.

THE SETTING

Choice of site, once the initial decision to excavate an undefended site or sites on Motutapu had been made, was dictated by practical rather than purely archaeological considerations. Station Bay, on the north-east side of the island was selected as a research area. The bay is dominated by a headland pa (N38/25) while most of the ridges fingering down towards the bay have field evidence of the sort to be investigated (Fig. 1). The bay itself provides a sheltered anchorage and easy canoe landing in most weather, while the streams running into it provide a permanent water supply, albeit a minimal one, today, and are presumed to have been at least as adequate in the past.

There are some nine undefended sites in the vicinity of Station Bay. Excavations were carried out on two of them, N38/37 and N38/30. The rest of this report describes the results of investigations at N38/37, while N38/30 is described in the following paper.

N38/37 is located on the broad ridge which separates the two main stream systems now draining into the bay (Fig. 2). It was chosen largely because a four-wheel-drive vehicle could easily be taken right to the spot, and because the site itself is one of the faintest and most poorly defined by surface features. It is located on a naturally flat area of ridge between the 50 and 100 feet (15-30 m) contours. Below the site, the ridge slopes steeply to the beach and to the stream gullies on either side. On the inland side, the ridge rises gradually to a spot height 202 feet (62 m) on the island's central ridge.

At the seaward edge of the flat area two patches of long green grass indicated some disturbance of the subsoil, while there appeared to be at least two broad shallow terraces to the east, and at least one to the north. Differential growth of grass on the terraces was further possible indication of pits.

THE INVESTIGATIONS

Excavation began on December 17th, 1967, and continued until January 13th, 1968. At the conclusion of the excavation, the site was refilled by mechanical means.

A grid of three-metre squares with one-metre baulks was set out on the site along a north-south axis. Some baulks were subsequently excavated and a few extensions made to uncover corners of pits, or to check important stratigraphic connections. The total excavated area is shown in Fig. 3. The form lines indicate the general conformation of the surface before excavation. The datum was fixed at a point on the slope to the west of the site, but for practical purposes a point at the south-west corner of square L-9 was used.

Initially, excavation commenced in squares L-9, L-10 and M-9, located on the flat area in the presumed centre of the site, where faint surface indications of sub-surface disturbance were apparent. The 8 row of squares was intended to provide a section down the northern slope through a terrace and/or pit feature, while the



FIG. 2. General view of N38/37 during excavation, with N38/25 in the background.

K row of squares was similarly intended to test a terrace on the eastern slope. These and remaining areas were opened as work progressed, depending on the fluctuations of the labour force.

Excavation on this site was largely done by hand trowel. Owing to the fact that a large number of those taking part were inexperienced, work progressed very slowly at times. As we were working initially in unfamiliar soil conditions, with little idea of what to expect, the necessarily slow progress meant that mistakes were largely avoided.

STRATIGRAPHY

Considerable confusion in interpreting the stratigraphy was experienced during the early stages of the excavation. This confusion arose because we had not expected

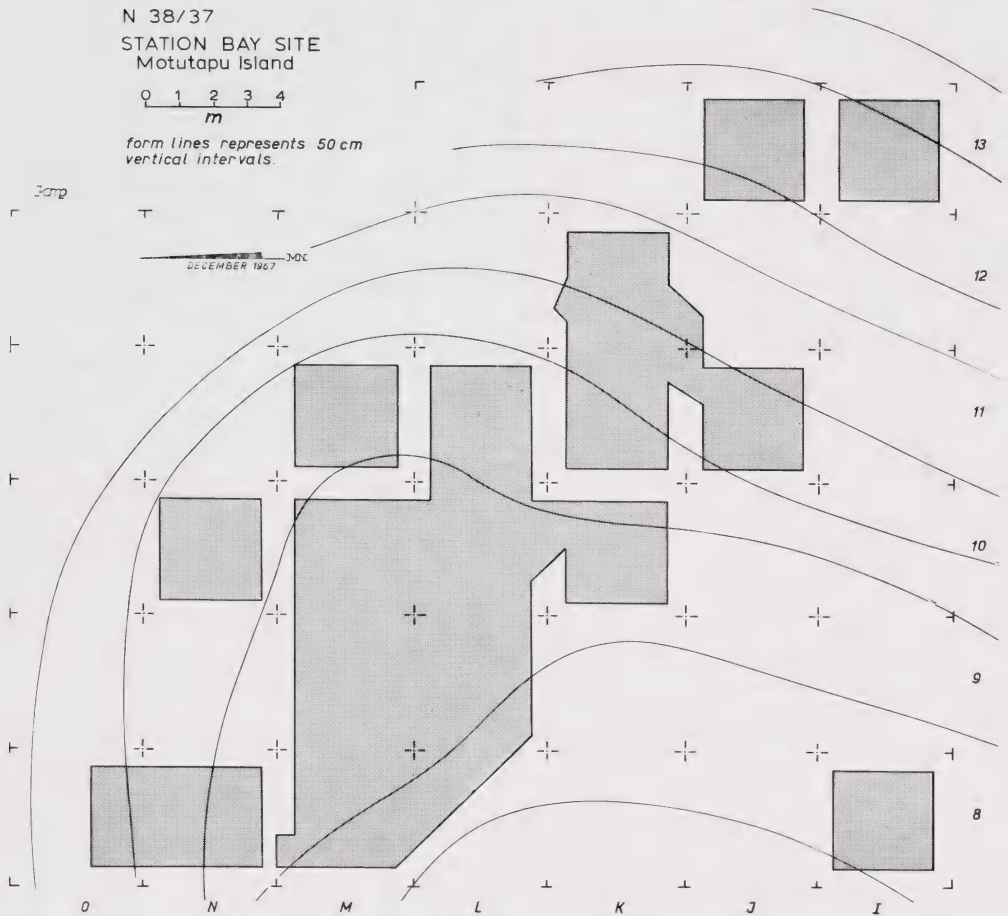


FIG. 3. Ground plan of N38/37 showing excavated area.

to find Rangitoto ash in quantity in this part of the island, and because the weathered clay subsoil was not accepted by many of the excavators as natural, and was indeed often very difficult to distinguish from the clay-derived layers which partially filled some man-made features.

The unmodified natural profile was well represented in square I-8, which was opened to test the flat, apparently undisturbed area to the south-west of the site. The stratigraphy, which was uniform throughout the square, consisted of:

- (1) Fine humic topsoil, with occasional fractured stone and considerable charcoal near the surface, varying from 14-18 cm deep in the area tested.
- (2) Windblown basaltic ash varying in depth from 16-35 cm.
- (3) Weathered clay subsoil.
- (4) Harder unweathered clay, natural.

No buried topsoil was evident between 2 and 3 but, in various places in this and other squares, charred twigs and other indications of burning were encountered at

the interface between 2 and 3 (cf. Brothers and Golson 1959, pp. 573-4). A similar profile was observed at N38/30 (Leahy, this volume), and is probably typical of this part of the island, the most variable layer being the windblown ash. Its variability and occasional total absence were noted in exposed sections in the side of sheep tracks or slips elsewhere in the vicinity.

The natural profile had been affected by human activity in a number of ways. In some areas the volcanic ash had apparently been cleared away during levelling activities, which had at times also penetrated the weathered clay. Pits of various kinds had been dug through both these layers into the underlying clay (Figs. 4 and 5). Midden material had accumulated in various parts of the site, and in some areas seemed to have been mixed with redeposited volcanic ash.

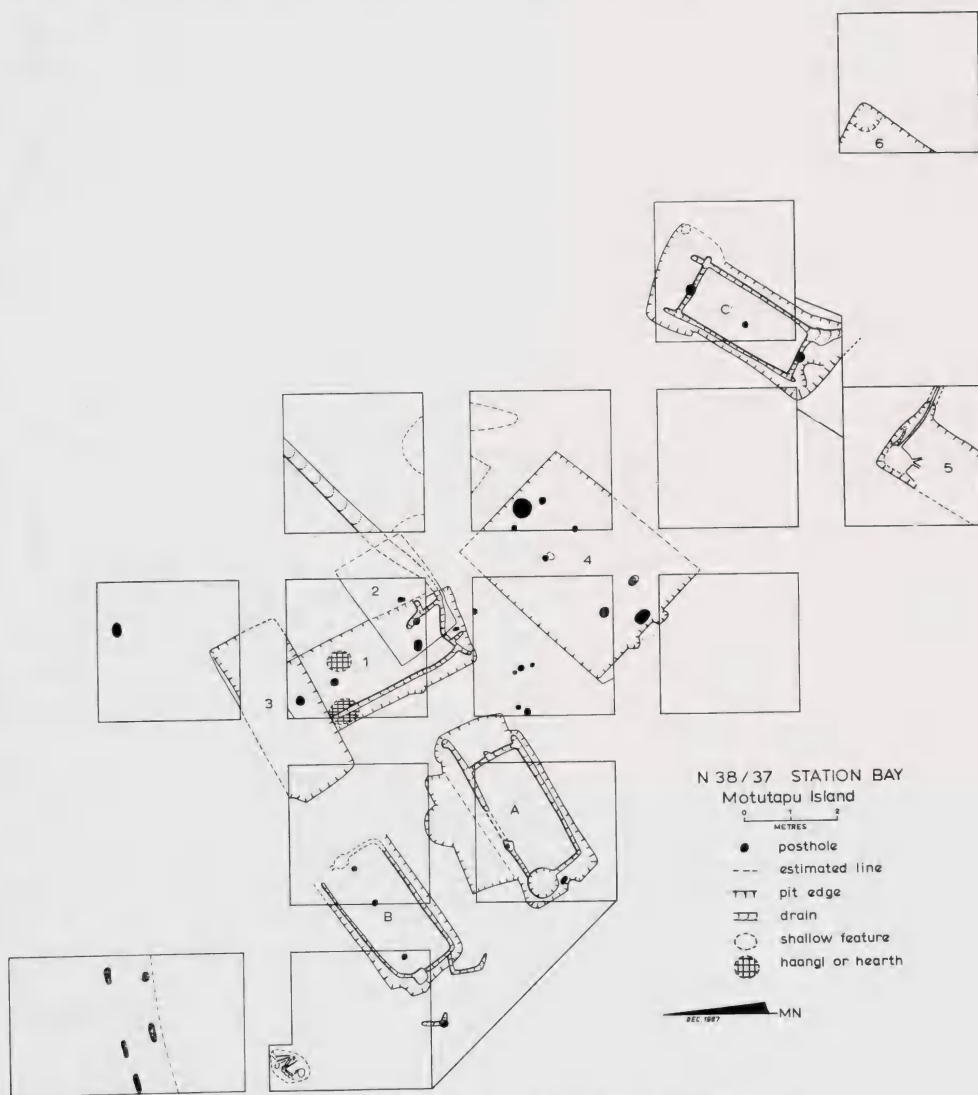


FIG. 4. Plan of features revealed by excavation, N38/37.

the interface between 2 and 3 (cf. Brothers and Golson 1959, pp. 573-4). A similar profile was observed at N38/30 (Leahy, this volume), and is probably typical of this part of the island, the most variable layer being the windblown ash. Its variability and occasional total absence were noted in exposed sections in the side of sheep tracks or slips elsewhere in the vicinity.

The natural profile had been affected by human activity in a number of ways. In some areas the volcanic ash had apparently been cleared away during levelling activities, which had at times also penetrated the weathered clay. Pits of various kinds had been dug through both these layers into the underlying clay (Figs. 4 and 5). Midden material had accumulated in various parts of the site, and in some areas seemed to have been mixed with redeposited volcanic ash.

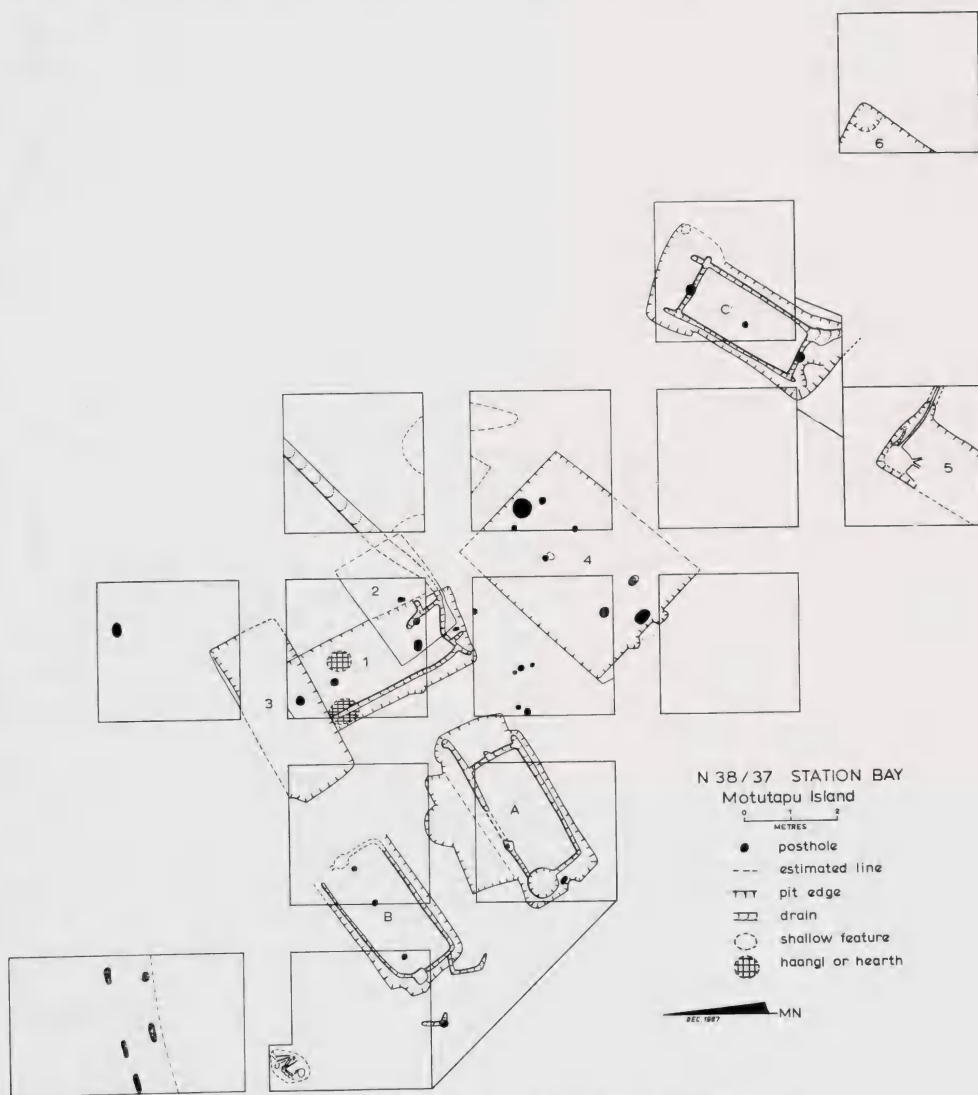


FIG. 4. Plan of features revealed by excavation, N38/37.

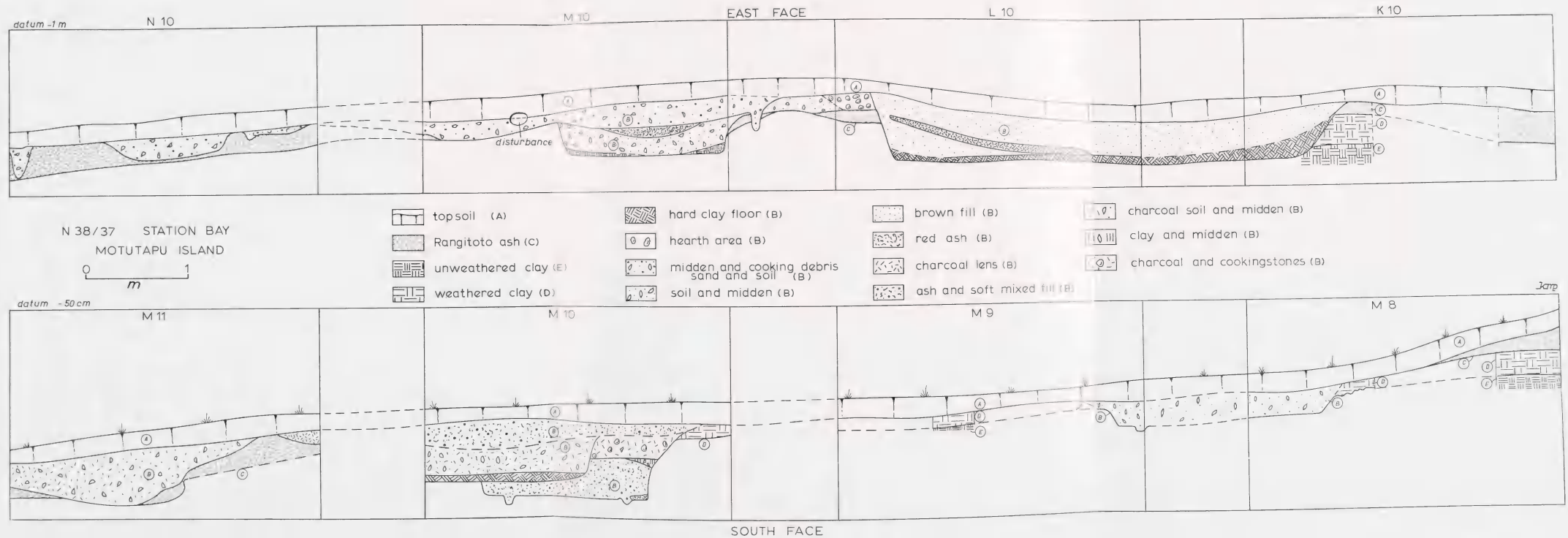
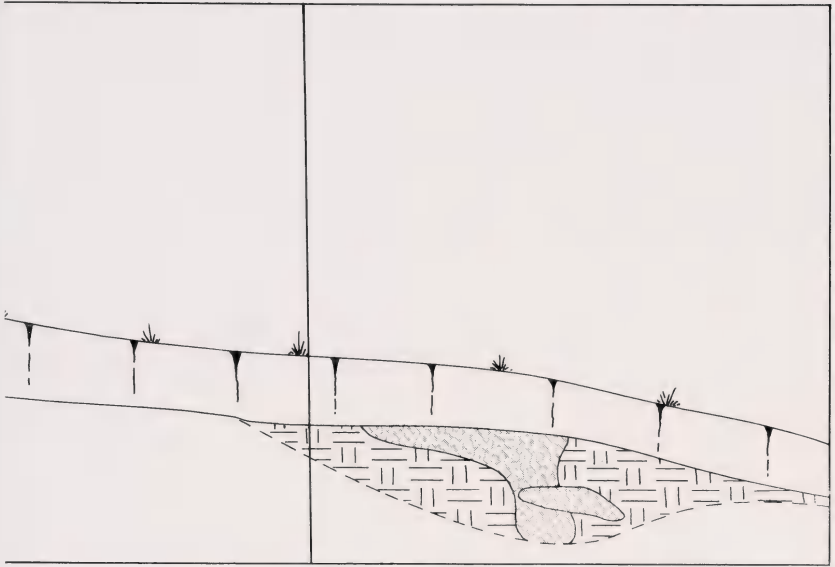


FIG. 5a. Principal cross-sections, N:38/37.

N 8

O 8

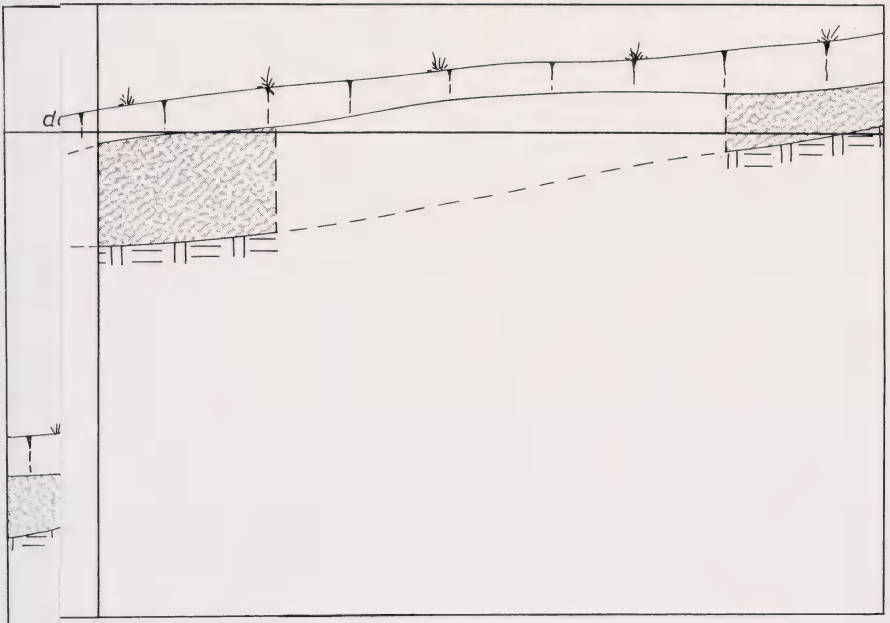
B''



A'

K 10

A



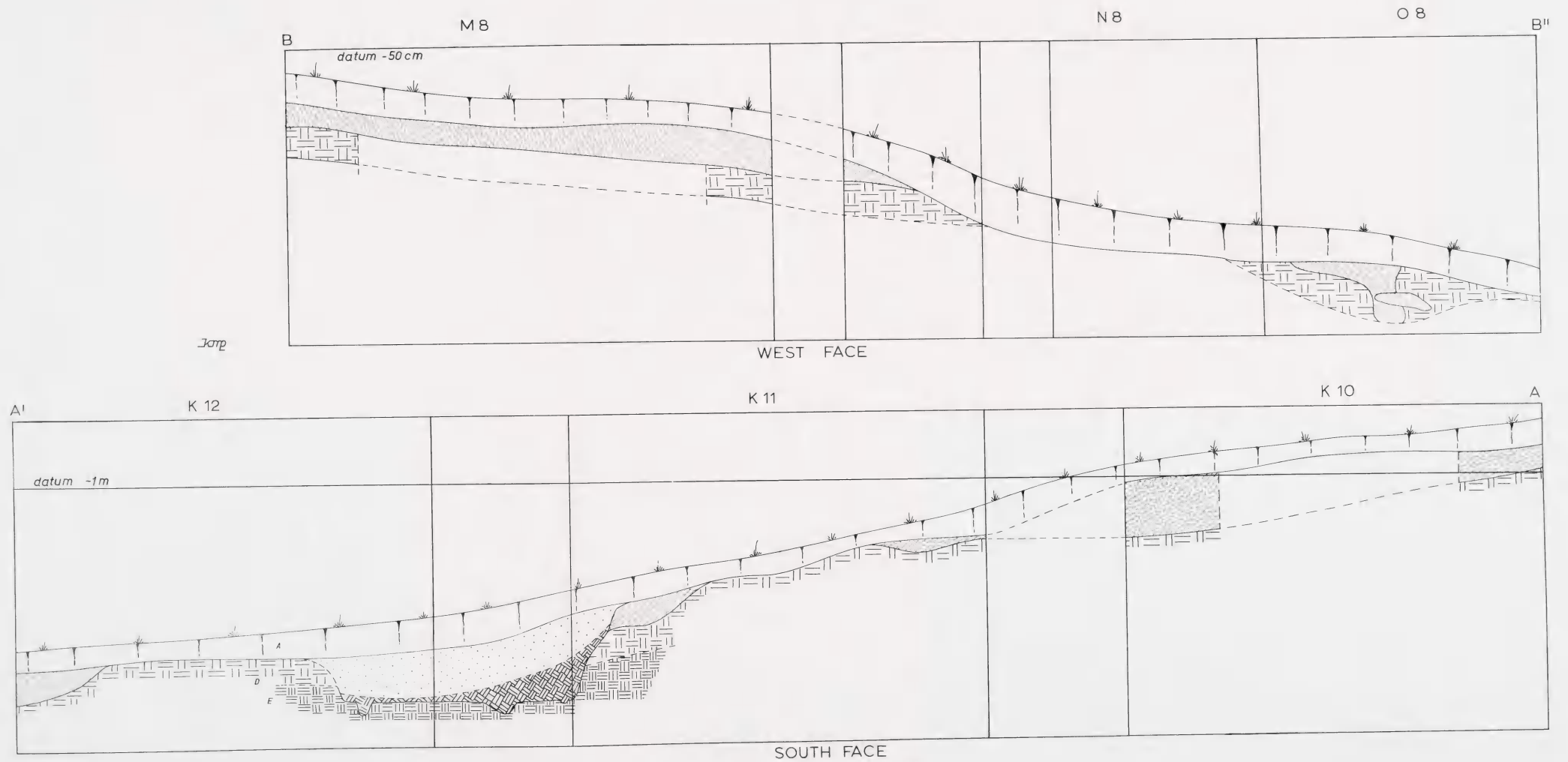


FIG. 5b. Principal cross-sections, N38/37 (continued).

With the possible exception of one posthole, no evidence of human activity on the site before the deposition of the volcanic ash was found. Thus, human activity may be regarded as postdating the deposition of layer 2. On the other hand, no instance of human activity on the site postdating layer 1 was found. This does not necessarily mean that occupation of the site began so soon after the eruption that no soil had developed on the ash; in those parts of the site where ash remained, however, midden layers were deposited directly on top of it. Over much of the site, thick layer 1 deposits were developed on top of layers resulting from human occupation.

Within the area of the site, the stratigraphy may be written as follows:

- (A) Topsoil similar to (1) of the natural profile but containing scattered cultural remains.
- (B) Those layers in the site resulting directly from human activity.
- (C) Windblown ash.
- (D) Weathered clay subsoil.
- (E) Clay bedrock.

These layer enumerations are used in the cross-sections (Fig. 5). The major human activity on the site throughout its occupation was the construction of pits and terraces. At the same time, use of the site for cooking and eating led to the deposition of some cultural layers. Both kinds of activity, however, were on a sufficiently small scale that no layers resulting from human activity on the site were widespread, all being small, localised and discontinuous. Although all human deposits are grouped together as B layers, they show considerable variation, and must be described individually from area to area.

Culturally deposited layers occurred in squares L-9 and L-10 on the south side of structure A, and between structure A and pit 4. Here, a thin layer of dispersed midden, mainly fragmentary shell and fish bone, was mixed with disturbed volcanic ash. Two hearth-like areas were found in position, one on the southern edge of structure A, the other between pits 1 and 3, and pit 4, cut through by the latter. The greatest concentration of midden material, however, was in squares M-10, N-10, and M-11, which was apparently the principal cooking area of the site. Several *haangi* were found in N-10, while the pits in M-10, particularly pit 1, seem actually to have been used for cooking, as several *haangi* were discovered at various levels in the fill of the pit. The focusing of cooking activities in this area is reflected by the large quantity of *haangi* stones recovered in these squares, compared with the rest of the site. (Allo, this volume). M-11, on the other hand, seems to reflect the dumping of midden waste on the edge of the slope, and although no excavation was conducted on the steep slope below this square, surface inspection revealed quantities of midden scattered down the slope for some distance. The midden layer in M-11 extended into the full northern portion of L-11.

The principal activity on the site was digging of various pit structures, which subsequently filled either naturally or deliberately. In several instances, intercutting pits were found, showing that not all features on the site were occupied contemporaneously. It is not possible, however, on stratigraphic grounds, to relate all pits to a single chronological sequence. As is so often the case, correlation of features in

different parts of the site must be based on such unsatisfactory evidence as similarity or difference in fill, or alignment (cf. Shawcross 1964a, p. 85). The nature of the infilling of the pits, and their probable temporal relationships are discussed in the following sections.

STRUCTURAL EVIDENCE

Evidence of ten subsurface structures was encountered in the site. These were not all contemporary, nor all of similar form. They have been divided into two separate categories for descriptive purposes: "structures" and "pits". These terms were assigned during the excavation and it has seemed convenient to retain them. They need not, however, reflect a difference in function.

The ground plan of all features in the excavated area is shown in Fig. 4, while cross-sections of structures B and C, and pits 1, 2 and 4 appear in Fig. 5.

Structures A, B, and C showed certain resemblances to each other, and differed from other excavated features on the site. The walls of structure A varied between 20 and 40 cm. The floor sloped far more markedly than is normal in pits, with a difference of more than 30 cm between the highest point (the south-west corner) and the lowest point (the north-east corner). The floor plan was characterised by a drain-like feature with a large circular hole 35 cm deep filled with compacted, ash-like material, at the higher end. There is a vestigial buttress at this end with a 15 cm deep posthole in front of it.

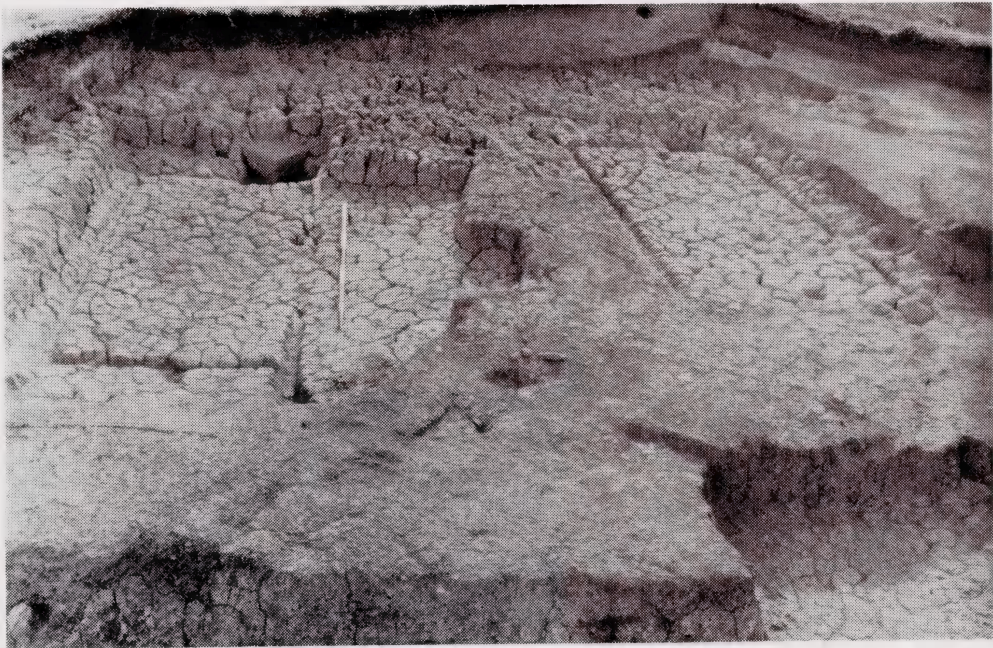


FIG. 6. Structures A, B and D, N38/37, viewed from the east after exposure to the sun for several weeks. The weathered clay in the background was exposed during an exhaustive search for postholes and, at the time of occupation, would have been covered with soil.

Structure A was cut into and had largely destroyed structure D, a rectangular structure of similar size and slightly different alignment, which was filled with a hard compact clay containing no cultural material. Structure D lacked drains or postholes in the surviving portion of its floor, but was marked by a circular extension in the centre of its long side (Fig. 6).

Structure B (Fig. 6) was shallower (maximum depth 30 cm), and slightly smaller than structure A, but was aligned parallel to it, and very similar in style. Unlike A, its floor was almost level, and it was covered with a mixture of ash and soil flecked with bone fragments and charcoal, whereas A had apparently been left open when the site was finally abandoned, and had gradually filled by natural processes. The sump in structure B was 40 cm deep. A line of stake holes slightly off centre averaged 13 cm deep. They may belong either to structure B or to a separate feature.

Structure C (Fig. 7) resembled the others in its sled-like drain arrangement and general shallowness. It had a buttress at one end, and its drain ran out in a channel. Like A, structure C appears to have filled naturally. The central postholes at either end were slightly more than 20 cm deep.

Pit 1 (Fig. 8) was probably the earliest feature on the site, and also the best constructed. It was a long rectangular pit with two central postholes (24 and 27 cm deep) large enough to support substantial posts, and two shallow postholes in the

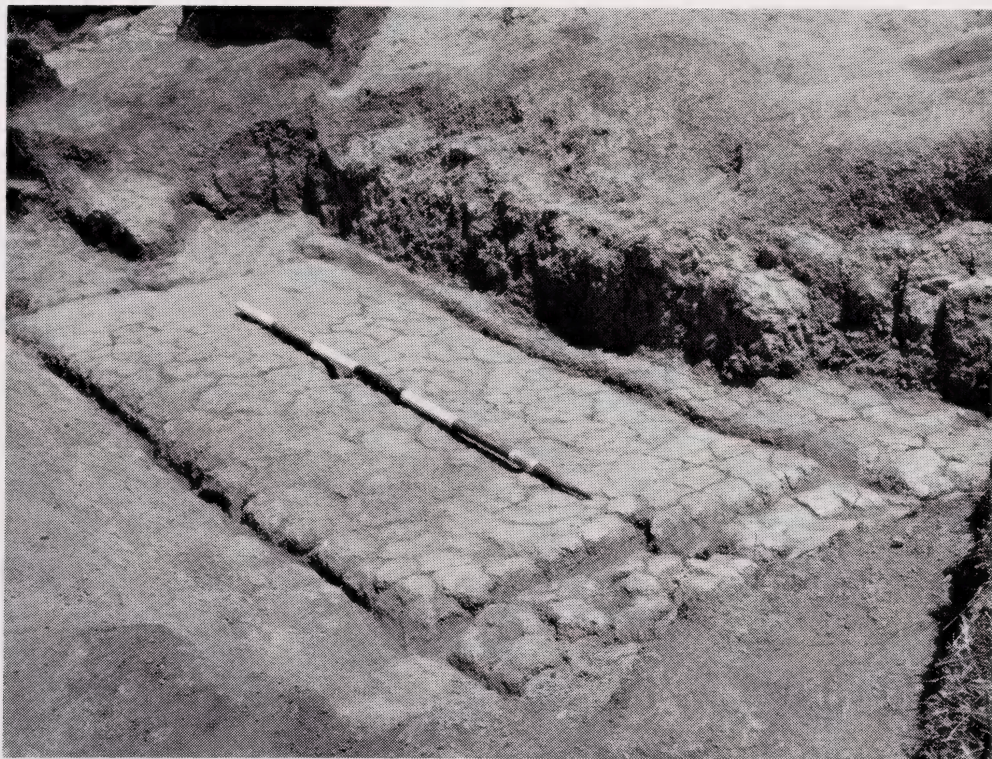


FIG. 7. Structure C, N38/37, from the north-east.



FIG. 8. Pit 1, N38/37, from the north.

same line where bracing posts probably rested. The curious floor drain ran out through a narrow slit in the wall, and became a deep V-shaped channel in square M-11. A remarkable feature of this pit is its use as a cooking area. The fill consisted of layers of cooking debris, charcoal, stones and scattered midden. Actual *haangi* pits were found at various levels in the fill, indicating that cooking took place in the depression formed by the pit.

Two shallower rectangular pits, 2 and 3, were cut across pit 1 after it had been entirely filled with cooking debris. Both had a thin layer of clay trampled on to the floor where they were cut into the soft material filling pit 1. Pit 2 had two central postholes (12 and 17 cm deep) and no drain, while no floor features were encountered in the excavated portion of pit 3. Both of these pits were also filled with midden debris, but it was more dispersed, and evidence that cooking actually took place in the pits was lacking.

Pit 4 was a broad shallow rectangular pit which lacked drains. The posthole pattern is evident in Figs. 4 and 9, and suggests a possible internal rack structure. The postholes ranged from 11 to 16 cm in depth. The north-south cross-section (Fig. 5) shows that this pit was cut through a hearth area which is clearly later than pit 1. Unfortunately, its relationship to pit 2 is not clear, although it is probable that pit 4 also postdates pit 2. Pit 4 appeared to have filled largely by natural processes.



FIG. 9. Pit 4, N38/37, from the south-east.

Pit 5 was aligned with structure C in such a way as strongly to suggest their contemporaneity (Fig. 10). It was a deep rectangular pit (nearly 1 m deep) with an end buttress at the excavated end, and a drainage channel which actually ran out through a tunnel in one corner, and appeared to link up with the open drain from structure C. The deepest portion of the floor was at the north-east corner; i.e., at the present time the drain runs into, rather than out of, the pit although the difference in level is very slight.



FIG. 10. Pit 5 and structure C, N38/37.

Only a corner of pit 6 was uncovered. It appeared to be a rectangular pit with a slightly undercut rim. The fill was a mixture of soil with scattered midden and lumps of clay.

The surface of the two areas represented by the 8 row of squares and the K row of squares suggested an identical type of disturbance. Excavation revealed that this was not the case. Whereas the differential growth of vegetation on the eastern slope did indicate the presence of structure C and pit 5, the identical effect on the northern slope was caused by the presence of a terrace, rather than a pit. In squares N-8 and O-8, a cut back into the natural slope resulted in the removal of layers C and D from the area and the construction of a flat terrace (Fig. 5). The purpose of this terrace is not clear. A few shallow slab-like postholes suggest the presence of some kind of structure, possibly a house. The curious disturbance shown in the section was thought

at first to be a cultural feature, but we later concluded that it was probably caused by an uprooted tree before the construction of the terrace.

In two other areas artificial levelling of the site had apparently taken place. In the vicinity of structures A and B the ground had been levelled by the removal of layers C and D to form a platform. Whether this levelling took place at the time of the construction of structure D or that of structures A and B is uncertain. As the levelled area coincided neatly with the area of structures A and B, it is probable that it dates to the time of their construction. On similar grounds it could be argued that pits 2 and 3, also fitting on the same cleared area, belong to the same construction period.

The possibility that the levelling of the area took place after the abandonment of structures A and B can probably be discounted on the grounds that the infilling of structure A suggests that no further activity took place on the site after its abandonment. On the other hand, the possibility that the levelling truncated or removed earlier structures in the same area is suggested by a 25 cm deep posthole and traces of a slot or drain on the slope behind structure B.

Another area where levelling probably took place is in the vicinity of pit 5 and to a lesser extent structure C, both of which seem to have been dug into an area previously cleared of Rangitoto ash. Similar levelling may have taken place in the area of pit 6, and a suspected unexcavated pit in the area of grid square I-12. No structural evidence was encountered in square I-13 which, however, revealed a surprising depth of disturbed soil and midden apparently derived from cultural activity further up slope. This deposit reached a maximum depth of 50 cm in the north-east corner of the square.

A few postholes in addition to those in the structures and on the terrace were found. Several postholes filled with layer B deposits were found in the flat area between structure A and pit 4, which may be contemporary with pit 1. Their significance was not apparent.

Postholes also occurred in square N-10, suggesting some kind of structure in the cooking area. The nature of such structure or structures could not be inferred from the few postholes uncovered. One posthole in this area was thought by its excavators to be earlier than the Rangitoto ash. It was filled with a mixture of ash and clay and occurred in an area where the ash mixed and merged with later midden deposits in a rather confusing way. The age of the posthole is therefore doubtful. It is the only feature found which may antedate the ash. It should be noted, however, that the ash was not excavated in many areas of the site, so that it is possible, though unlikely, that other features lie concealed beneath it. The location of features beneath the ash anywhere on Motutapu would be dependent on extensive test boring or mechanical excavation.

BURIAL

A burial was encountered in the north-west corner of square M-8 extending under the baulk M-8/N-8 (Fig. 11). The skeleton, in good condition, was that of a mature individual, probably female. The burial was placed in a thick layer of

Rangitoto ash and covered with similar material, which accounts for the excellent state of preservation. No grave was discernible, and it is assumed that the body was placed in a scooped depression and covered immediately with the material excavated from the depression. The body lay on its right side, oriented towards the south, but facing east. It was flexed, and in a more natural position than the flattened skeleton from site N38/30. There were no grave goods.

For cultural reasons, this image has been removed.
Please contact Auckland Museum for more information.

FIG.11. Burial, square M-8, N38/37.

There is no indication of the time during the site's history when the burial occurred. It could be associated with any of the other features. The presence of a burial in N38/30 more closely related to the occupation of that site indicates that burial in or near settlements may have occurred on Motutapu in the past without necessarily requiring the abandonment of the site.

Although no other burials were found, a portion of human tibia occurred in the topsoil covering structure C. This was not a midden area, and the possibility that the bone derives from past disturbance of another burial somewhere in the upper part of the site is suggested.

OCCUPATION SEQUENCE

Three separate stages of occupation or use of square M-10 could be identified, and two of L-9. In other areas there was evidence for only one activity, and correlation between areas could only be inferred.

The first evidence of use in M-10, and probably in the entire site, is pit 1, with which no other features are certainly associated.

Only a brief period appears to have elapsed between the abandonment of the pit's original function and its use for a cooking area, as there is only a slight deposit of natural infilling in the base of the pit. On the other hand, the possibility that it was cleared out for use as a cooking area or, more probably, that a roof over the abandoned pit retarded the rate of natural infilling, is suggested by the nature and depth of fill in the drain in M-11. Most of the pit fill consists of a build-up of cooking deposits.

No stratigraphic grounds exist for correlating the cooking deposits in pit 1 with other activities on the site, but it is unlikely that there were no other activities taking place at the time. The structures A and B could be associated, or the earlier structure D. The latter, however, could equally be associated with initial use of pit 1. The strong possibility that evidence of occupation in squares L-9 and M-9 was destroyed during the terracing and construction of structure A and B must be admitted.

Thirdly, in M-10, two more rectangular pits were constructed, aligned almost at right angles to pit 1. The associations of these pits, too, depend on inference rather than direct evidence.

New Zealand archaeology has become conditioned to the assumption that two pits are often associated, aligned along a single axis (Parker 1960, Golson 1961). Consequently it is easy to assume in this case, too, that pits 2 and 3 are associated with structures A and B. There are some grounds for making this assumption, however, if we assume that structures A, B and C are contemporary on the grounds of similarity to each other, and difference from pits 1 and 4, which are probably earlier and later respectively. In the case of structure C and pit 5, the conclusion that they are meaningfully aligned is unavoidable; both are on the same terrace, in an area of the site where there appears to be no other occupation, and the alignment is identical. The assumption that structure C and pit 5 are contemporary makes it easier to assume a similar relationship between structures A and B, and pits 2 and 3.

On the grounds of alignment, pit 6 and probably another unexcavated structure aligned with it, would also be associated with this group. The position of the terrace on the northern slope cannot be determined stratigraphically, and may be assigned to this or other stages with equal reason.

The only remaining structure to be discussed is pit 4. There is no doubt that pit 4 is later than pit 1 on stratigraphic grounds, and some slight evidence that it is later than pit 2 on the basis of some fairly complex local stratigraphy in the area of the baulk L/M-10 (Fig. 5). Its different nature and alignment from other features inclines me to this interpretation, although it could acceptably be interpreted as contemporary with structures A and B.

Another factor to be considered is the fill of the various pits. On this basis, structure A, C and pit 4 all rank late as having filled largely by natural means after abandonment of the site. Pit 5, which has a complicated fill of clay lumps and other lenses, was almost certainly filled quickly and deliberately. This means it could still have been contemporary with structure C, despite their different fills and could, indeed, have been filled with spoil dug out of pit 4, if this indeed was later. The difference in fills between pits 2 and 3, structure B and structure A, is stronger

evidence against their contemporaneity. The fills of the pits could have been the result of the continuing popularity of this area of the site as a cooking area. The difference of fill between structures A and B will be discussed in the section on interpretation.

Taking all factors into consideration, I am inclined to propose the following succession for the site:

1. Construction of pit 1 and its use for purposes other than cooking. Other activities not known.

2. Use of abandoned pit 1 for cooking, probably associated with structure D and other activities or structures in the area of structures A and B now destroyed by later activities. Portion of a drain at the south-western end of structure B could be a remnant of an earlier truncated feature. The terrace on the northern slope may also belong to this period.

3. Construction and use of structures A, B and C associated with pits 2, 3 and 5, and pit 6 probably associated with another structure or pit in the unexcavated area. The terrace on the northern slope more probably also belongs to this time. Cooking and dumping activities continued in the north-eastern corner of the site.

4. Construction and use of pit 4, perhaps associated with further cooking and dumping activities in the area of M-10 and M-11, and possible continued use of structure B and the terrace.

From the foregoing discussion, it will be apparent that this is merely what I consider the most economical and satisfactory explanation of the evidence; other alternatives could be chosen.

FAUNAL REMAINS

An attempt was made to collect all midden material from the excavated area. All substantial pieces were collected, but the deposits were not sieved, and many small fragments of shell and bone must have escaped the patience of the excavators. Only in M-11 was a definite decision made not to collect all faunal material; here, more concentrated deposits of shell middens were found, and a single large sample was taken in the area where they occurred. The midden analysis is the subject of a separate paper (Allo, this volume). Here, it should merely be noted that the midden material represents deposits associated with occupations 2, 3 and 4; the only occupation for which no midden was present being period 1, represented by pit 1. No obvious differences in content in the different midden deposits were noted, and because of the difficulty of confidently identifying deposits of different ages, the midden was treated as one assemblage. This can be justified on the grounds that individual layers and areas show little or no difference from other layers and areas.

ARTIFACTS

Sufficient artifactual material was recovered from the site to indicate that a range of activities was being carried on there. Very much less was recovered from

TABLE 1
DISTRIBUTION OF ARTIFACTS IN N38/37

ARTIFACTS	EXCAVATED SQUARES																											
	N-8	N-8 ext.	N-10	M-8	M-8/9	M-9	M-10	M-9/10	L/M-10	L/M-9/10	M-11	L-8	L-9	L/M-9	L-9/10	L-10	K/L-10	L-10/11	L-11	K-10	K-11	K-12	K-11/12	J-11	J-13	I-8	I-13	
Obsidian																												
grey	29	19	2	12	2	13	—	1	1	1	2	1	5	1	—	1	—	—	—	—	3	1	1	1	7	1	—	—
green	5	2	—	1	—	1	—	—	2	—	—	1	3	—	—	—	2	—	—	—	4	—	—	1	4	2	—	—
Greywacke																												
flakes	6	—	—	6	1	17	2	—	1	—	—	2	—	—	2	4	4	1	—	10	5	4	—	7	4	—	4	
chips	2	—	—	2	—	3	1	1	—	—	2	—	—	—	—	4	2	—	—	2	3	—	—	6	1	—	—	
Chert																												
flakes	—	—	—	—	—	1	1	—	—	—	2	—	1	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—
chips	—	—	—	2	—	2	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	2	—	1	8	—	1
Adzes																												
complete	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
rough out	x	—	x	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	x	—	x	—	x	—	—	—
chip	—	—	—	—	—	—	—	—	—	—	—	x	—	—	—	—	x	—	—	—	—	—	—	—	—	x	—	—
hammerstone																												
—	—	—	—	—	—	x	—	—	—	—	—	?	—	—	—	—	—	—	—	—	x	—	—	—	x	—	—	—
grindstone																												
—	—	—	—	—	—	—	—	—	x	—	—	x	—	—	—	—	—	—	—	—	—	x	—	—	—	?	—	—
burnisher	—	—	—	x	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	x	—	—
bone	—	—	—	x	—	—	—	—	—	—	—	—	x	—	—	—	—	—	—	—	—	—	x	—	—	—	—	—
hone	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	x	—	—	—	—	x	—	—	—	—	—	—
core	—	—	—	—	—	—	—	—	—	—	x	—	—	—	—	—	—	—	—	x	—	—	—	—	—	—	—	—
chopper	—	—	x	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
bone artifact	—	—	—	—	x	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

x = present

this site, however, than from the smaller area excavated at N38/30. The artifactual material falls into several main categories. Only two bone artifacts were recovered, a tattooing chisel, and a piece of worked bone that may be intended for an ornament. No shell artifacts were identified, although an *Amphidesma australe* shell full of fish scales, which had obviously been used for scaling fish, was found in the midden in square M-11. There is a substantial assemblage of obsidian. The remaining artifactual material consists of adzes and items associated with their manufacture, and stone flakes. The horizontal distribution of artifacts in the site is shown in Table 1.

TATTOOING CHISEL

A small bone tattooing chisel, AR 910, was found in the fill of structure B in square M-8. It is a flat straight-sided piece of bone, 2.2 cm long (from the butt to the beginning of the teeth) and .7 cm wide. The butt end is straight except for an indentation apparently resulting from a former perforation. There is a perforation in the centre a few mm in from the butt. The teeth are broken, which is probably why the chisel was discarded. In the area where they are still measurable there are 3 teeth to a space of 4 mm.

WORKED BONE

Also in the fill of structure B, in the baulk of M-8/M-9, was a small worked piece of bone, AR 921, apparently fish bone. It is flat and thin, 2.9 cm long and 1.5 cm wide at one end, tapering to a point at the other end. It has been cut from a larger piece of bone by sawing across the wide end. Whether it is a waste piece from the manufacture of some unknown object, or whether it is an incomplete item intended as an imitation shark tooth, for instance, is not clear.

ADZES AND ADZE FRAGMENTS

The only complete adze from this site, AR 1047, was found in the fill of structure C, lying near a patch of reddish wood ash at the top of the fill. Its position indicated that it had been deposited after the abandonment of structure C, so that it cannot be regarded as clearly associated with occupation of the site. This adze (Fig. 12a) is 16.3 cm long, 5.6 cm wide and 3.0 cm thick at the centre. Its maximum width at a point about one-quarter of the total length from the cutting edge is 6.0 cm. It has a rounded quadrangular section, and no butt modification. The surface is hammer dressed all over, while only a portion of the front, and the bevel, show signs of grinding. The adze was, however, evidently considered usable, for the cutting edge shows signs of wear. In shape, the adze is close to Duff's type 2B (Duff, 1959, p. 133). In finish, however, it belongs to the same tradition as adzes from N38/30.

The butt end of an uncompleted triangular sectioned adze, AR 941 (Fig. 12c), was found in the midden and cooking layer in square N-10. Alone of the adzes from this site and N38/30, it is not made of local greywacke. The length of the portion recovered is 6.7 cm and the width and thickness at the broken portion are 4.8 and 4.0 cm respectively. In section, this fragment is of undeniably Archaic appearance. Its position in the site, however, suggests possible use as a *haangi* stone, so that its Archaic affiliations may be misleading.

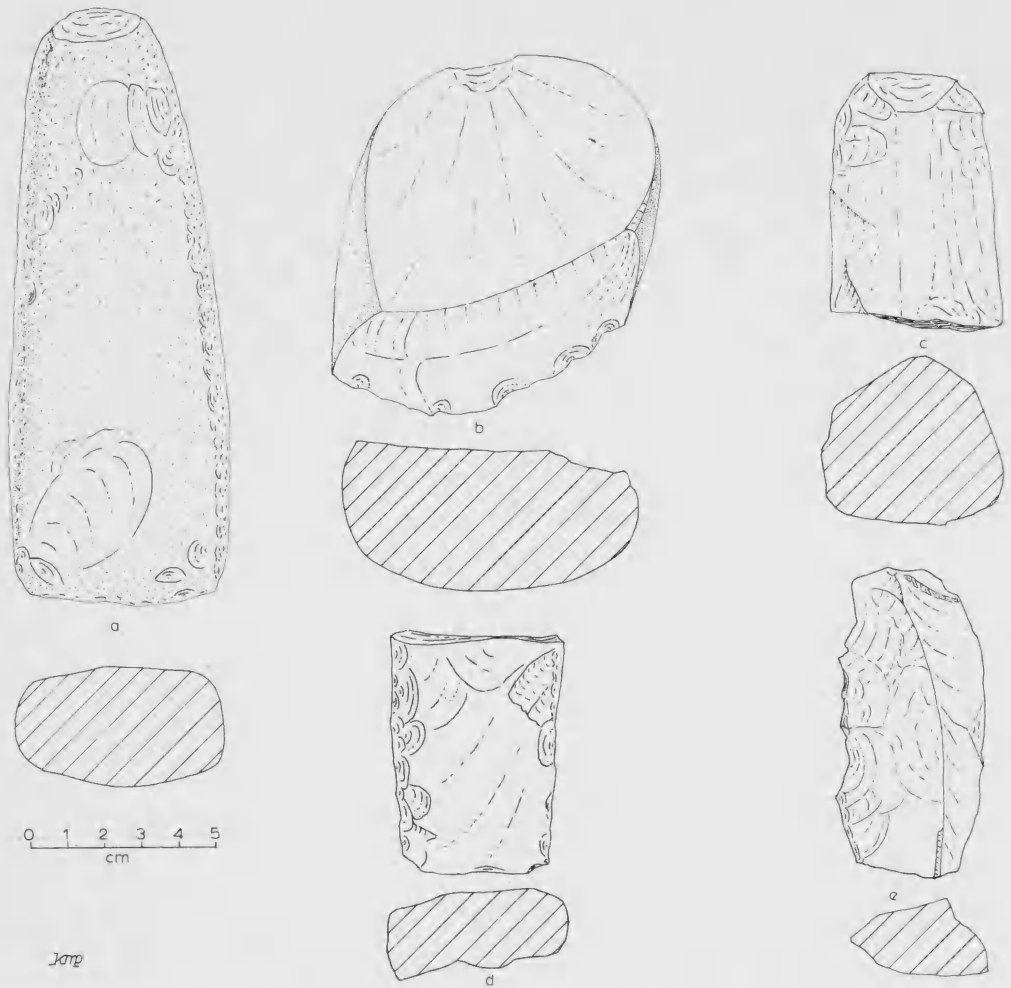


FIG. 12. Stone artifacts, N38/37: a. adze, AR 1047. b. pebble chopper, AR 893. c. portion of triangular-sectioned roughout, AR 941. d. broken roughout, AR 881. e. possible roughout, AR 1037.

Two broken central sections of roughouts were recovered from square J-11. Both are in local greywacke, and exhibit the kind of flaking technique most commonly associated with the manufacture of Archaic adzes. AR 1065 was found in the soil layer outside the area of pit 5, and appears to be part of the roughout of a thick quadrangular adze, almost as thick as it is wide. Deep in the fill of pit 5, as part of the deliberate infilling, was AR1074, a rough central section of a wider, thinner quadrangular-sectioned roughout. Both these items were poorly flaked and showed no signs of hammer dressing.

A portion of a better made and more advanced roughout, AR 881, was found resting on the terrace in square N-8 (Fig. 12d). It may be either the butt or blade of a rectangular-sectioned roughout, which had been shaped by flaking, and was being hammer dressed when it broke and was discarded.

One other item that may be an adze roughout was found lying on the Rangitoto ash layer in square K-11. It is a small blade-like core (Fig. 12e) which has no evidence of hammer dressing, but could be the roughout of an adze similar to the smallest recovered from N38/30.

Several small chips which seem to be from complete adzes were found and include examples from layer A in J-13 and L-9 and the fills of structure A and pit 4. These may indicate the actual use of adzes on the site.

The adze fragments most closely associated with occupation of this site are all roughouts made in local greywacke by flaking and, in one case, hammer dressing. The techniques used recall those used by the occupants of the Pig Bay and Sunde sites. The shapes, however, seem to be quadrangular, and generally lacking in butt modification. The complete adze, while probably also made by the same techniques, is definitely 2B in type, while the only unquestionably Archaic specimen may not have been part of the adze kit of the site's occupants.

HAMMER STONES

That hammer dressing of stone took place on the site is evidenced by three well-used hammer stones. AR 1038 was found resting on Rangitoto ash in square K-11. It is a rounded, fist-sized, water-worn pebble of fine-grained stone, probably greywacke, which exhibits bruising on one end. Its maximum diameter is 8.1 cm and minimum 6.2 cm. A similar but more oblong pebble of the same type of stone, which had no sign of use, was found in the topsoil on the slope behind structure A in the excavated portion of square L-8.

AR 925 was found in square M-9 and was probably associated with the use of structure B. It is a roundish flat disc-like pebble with extensive bruising all around the circumference. Its maximum diameter is 7 cm and maximum thickness 3.3 cm. AR 1066 is a broken pebble of a local green chert. One end has been used as a hammer. This stone was found lying outside pit 5 in square J-11. Several chips of similar stone, which appear to be fractured bits of hammer stones, are described below in the section on flakes.

No hammer stones of jasper were found in this site, in contrast to N38/30. AR 1038, 984 and 925 appear to be local greywacke, while AR 1066 is also a local stone.

GRINDSTONES AND BURNISHERS

Although only one partly polished adze was found in the site, several pieces of grindstones and other abraders were found, indicating that activity on the site probably included the sharpening of tools. A broken grindstone, AR 985, was found in L-8 on the slope above structure A. It is a flat stone with a smooth depression on one surface resulting from its use as a grindstone.

Two smaller fragments which are probably also from grindstones are AR 1046 from the fill of structure C and AR 980 from the fill of pit 1 in the baulk L-10/M-10. The latter may have been used as a *haangi* stone. Each of these three stones appears

to be of volcanic origin, possibly basalt, and would not occur naturally on Motutapu. A flat piece of sandstone, which would be suitable for grinding, but had not been used, was found in layer A in square J-13. It, too, must have been brought to the site deliberately.

Several small stones with one or more highly polished surfaces seemed to have been used for burnishing or polishing, although they might have been used for working wood rather than stone. AR 1080 was found in layer A in square J-13, and AR 902 in layer A in M-8. A more doubtful example, AR 966, was found in layer B in M-11. In several areas of the site, soft pebbles of mudstone were found which had grooves, apparently made by honing. They were found in layer A in square M-8 and L-9, and against the wall of structure C. It is possible that the grooves are natural rather than artificial.

GREYWACKE FLAKES AND CORES

In view of the presence of hammerstones and grindstones in the site, the small number of stone flakes was surprising. It seems that such adzes as were brought to the site were ready for hammer dressing, and that little or no rough shaping of adzes was done there. Only a small number of flakes showed signs of use; the scattered distribution of the remainder throughout the site gives little clue of the reason for their presence.

All pieces of greywacke saved as flakes during the excavation were inspected during analysis. Quite a number were found to have no identifiable striking platform or bulb of percussion, and seem to be broken pieces of larger flakes. These were not measured, as there was no means of ascertaining their correct alignment. Those which were identifiable flakes were measured following the alignment suggested by Shawcross (1964b). The presence of weathered cortex, or a water-worn surface, was noted and also signs of use, or marks of hammer dressing. Of the total collection of 109, 29 were found to be chips, that is, they lacked identifiable striking platforms. They did exhibit partial flake scars, however, and appear to be broken flakes rather than natural spalls. One had an area of cortex, and two had one water-worn surface. None showed evidence of use or hammer dressing. Of the 80 flakes, 14 had traces of cortex and 13 traces of a pebble surface. Eight of the 80 had signs of use, on at least one edge, that were visible to the naked eye. This visible use mark consisted of tiny chips, sometimes accompanied by a patina or polish. Experiment revealed that greywacke flakes could be used for cutting soft material (such as the investigator's finger) without leaving any visible sign of use on the edge, suggesting that most flakes could have been used for purposes such as food preparation, and that only those employed in working harder material show visible signs of use. Five of these were used along an edge formed by the junction of a pebble surface and a flake surface. They had evidently been struck directly off a pebble. Two of the five showed bruise marks around the striking platform, as though several attempts had been made to dislodge the flake. The other three flakes showing use marks included two flakes with cortex, one of which also had signs of bruising, and a flake from a hammer-dressed adze. The only other flakes worthy of comment were one with pebble surface, and one ordinary flake, both showing signs of bruising.

All identifiable flakes were measured. Only length-breadth dimensions were taken; angle of striking platform was not considered. In Fig. 13, the number of flakes falling into each 5 mm square is shown. The total flake collection shows a considerable size range, and a tendency for flakes to be greater in width than in length. The flakes with some area of weathered cortex visible follow the general flake pattern in tending to be wider rather than longer. Those with a pebble surface, however, tend in the other direction. Flakes with pebble and cortex surfaces tend to be larger than average.

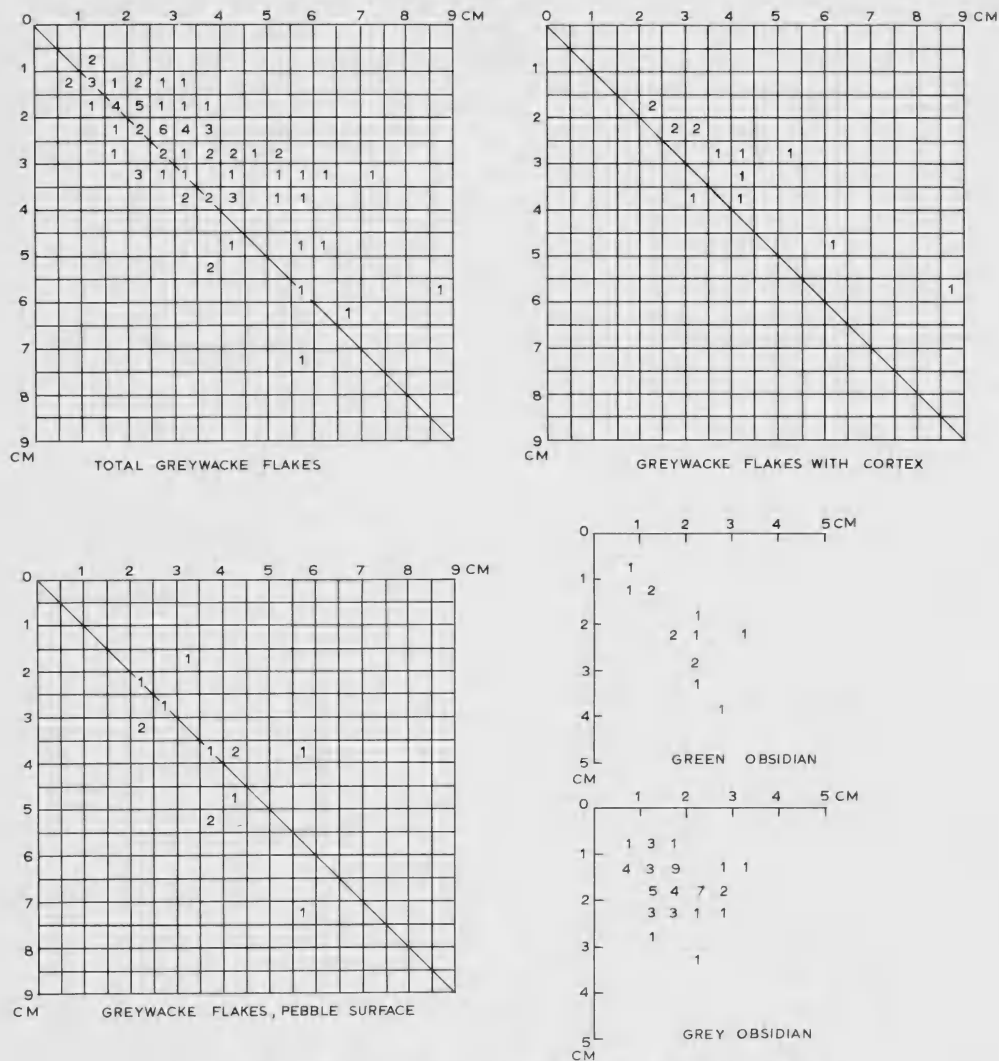


FIG. 13. Measurements of obsidian and greywacke flakes, N38/37.

Several cores or pieces of greywacke were found. Three pieces of similar size to the largest of the flakes were found in M-11 in the midden, in the fill of pit 4, and in layer A in K-11. A larger core with a small area of pebble surface and a number of flake scars was found near the surface of L-11.

A large smooth water-worn stone was found resting on the subsoil outside structure C. The purpose for which it was brought to the site is uncertain.

A crude pebble chopper was found in N-10 in the midden layer. It was formed by breaking a water-worn pebble, or striking a flake off it, and then dislodging a second flake which removed the original bulb of percussion. The removal of the second flake resulted in a remarkable flake scar (Fig. 12b). The edge where pebble surface and original flake scar meet shows signs of extensive use.

During excavation, a number of pieces of the chert from which the hammer stone AR 1066 was made, were collected. Of a total collection of 25 pieces, only five were found to be true flakes. Four of these, and 17 of the total collection, were from the exterior portions of water-worn pebbles. One of the flakes and two of the other pieces showed extensive bruising, and are probably from hammer stones. Despite its promising appearance, this type of stone does not flake well. The explanation for many of the pieces found in the site may be their derivation from hammer stones.

OBSIDIAN

One hundred and thirty-two pieces of obsidian were found. Of these, 28 showed a greenish tinge when held up to the light, and are assumed to be from a Mayor Island source. The remaining 104 are grey, although there is considerable variety in their opaqueness, and a few pieces have a pinkish tinge. It is hoped to have a representative sample of obsidian from this site analysed for its sources, and measured for the development of hydration rims.

The distribution of obsidian as well as other items in the site is shown in Table 1. From this it is evident that the bulk of obsidian was found on the terrace in N-8 and the vicinity of structure B.

The obsidian was divided into four main categories. Flakes included only those on which a complete flake scar and bulb of percussion could be identified. Chips are apparently broken flakes, being normally thin, and exhibiting a portion of the flake scar. The term core was restricted to small cores which have numerous small flake scars, and could not provide further flakes. These were originally considered to be discarded cores, but their small number, similar appearance, and the presence of use marks on some of them suggest that they may have been some kind of tool in themselves. The remaining category, designated pieces, included items with parts of several flake scars which, however, lacked the completely flaked appearance of cores, while being more substantial than chips.

All items were inspected for evidence of use or secondary flaking, the presence of hinge fractures, the presence of the bubbly surface characteristic of the edge of an obsidian flow or boulder, and any combinations of these factors. The numbers in each category are given in Table 2 for the whole assemblage. The distribution of different categories in the site was not remarkable. Flakes showing use, however, were not concentrated on the terrace and structure B to the extent that total numbers of obsidian items were.

Five items deserve special mention. These are derived from water-worn obsidian, and include two fresh flakes, a fresh chip and a fresh piece from larger water-worn

TABLE 2
ANALYSIS OF OBSIDIAN FROM N38/37

		GREY	GREEN
FLAKES	ordinary	24	7
	with use marks	7	5
	external boulder surface	14	0
	external boulder surface and use marks	1	0
	hinge flake	4	0
	hinge flake with use marks	1	0
CORES	ordinary	3	1
	with use marks	2	0
	external boulder surface	3	0
	external boulder surface and use marks	2	0
PIECES	ordinary	9	5
	external boulder surface	11	0
	external boulder surface and use marks	1	0
	scar of hinge flake	1	0
	scar of hinge flake and use marks	1	0
CHIPS	ordinary	14	5
	with use marks	0	2
	external boulder surface	2	0
	part of hinge flake	2	0
WATERWORN	flake	1	0
	flake with use	0	1
	core with use	1	0
	chip with use	0	1
	piece	0	1

pieces or cores, and a water-worn piece with fresh small flakes on one edge. One of the flakes and the chip show signs of use. Two of the items (one flake, and the piece) are grey and come from the terrace, while the remaining items are green and were found in K-10 and J-11.

So far as can be ascertained, the parent materials in all cases were water-worn artifacts, rather than natural pebbles, suggesting that they were collected from a beach where they had eroded from an abandoned site. The fact that both green and grey obsidians are represented tends to reinforce this view.

The chronological relationships within the obsidian assemblage are doubtful, but it seems likely that almost all the assemblage belongs to the postulated occupations 3 and 4, as no obsidian at all was found associated with pit 1 or its infilling. The heavy preponderance of grey obsidian in the total figure for the site is due to the large quantity recovered in the vicinity of the terrace and structure B. The working of a single smallish lump of grey obsidian in this area could be responsible for this. The proportions of green and grey are more even in the rest of the site and it appears that the occupants were obtaining obsidian from at least two different sources.

DISCUSSION

The total evidence from this site shows that a wide range of activities were carried out including not only the construction and use of pits, but the preparation, cooking and eating of marine, and presumably also vegetable food, and the finishing, use and probably repair of stone tools. It can thus be seen as a true undefended settlement, where a variety of domestic activities took place.

The evidence recovered from the site, however, does not easily lend itself to interpretation in specific terms relating to definition of domestic and communal units as outlined by Groube (1965), largely because of the lack of adequate stratigraphic evidence for determining which of the structures in the site are contemporaneous. Moreover, the function of the structures is in some doubt.

With the beginnings of systematic stratigraphic excavation in the Auckland Province, claims that pits were used both for dwelling and habitation were advanced for such sites as Skipper's Ridge (Parker 1960), Kauri Point (Golson 1961) and the Kauri Point undefended site (Green 1963b) with the further suggestion by Parker (1962) that at Kumara Kaiamo in North Taranaki, sunken houses were replaced by surface dwellings characterised by the rectangular stone hearth. The assumption that pits were ever used for dwellings has been challenged on many grounds during recent years, while those who argued most strongly in favour of the existence of sunken dwellings are no longer actively concerned in the investigation of New Zealand prehistory. Principal arguments against the existence of sunken dwellings have included the remarkably clean interior of most excavated examples, and the unnecessary clumsiness of a hypothesis which postulates the initial introduction of a surface house (which continued throughout the prehistoric sequence of much of the South Island), its replacement at a fairly early date by a sunken house, and the subsequent reversion to a surface house commonly described in the Proto-Historic Period (Groube 1965). The major argument in favour of sunken houses, the absence of excavated evidence for surface houses, is now being overcome by their discovery in a number of sites, including two reported in this volume (Leahy, Davidson, following papers).

Even so, the question is still of such importance in the interpretation of New Zealand prehistory that it is worth taking a further look at some of the issues involved. The first point is that what is under consideration is not a true "pit house" but merely a structure whose floor may be sunk as little as 30 to 50 cm below the ground surface, and usually less than one metre. Secondly, although food pits of various kinds have been excavated in tropical Polynesia, these are mostly of the small bin or *rua* type. The change from this type of storage to the larger rectangular roofed structure so frequently encountered in New Zealand is a fairly major one. Modern examples of sunken *kumara* stores still existing in parts of the Auckland province indicate that they could be perfectly acceptable dwellings, and it seems unwise to suppose that such structures were never so used. Indeed, on present evidence it is difficult to say whether the initial step was from a sunken house to a sunken store of rectangular rather than bin type, or the other way round. Although evidence is now rapidly accumulating concerning houses and domestic and communal units in the Classic Maori phase, the same cannot be said of earlier phases, where

attention appears to have reverted to artifact collecting. There is still little evidence for the nature of houses in earlier phases. The argument that the sunken house does not occur at all in the far south may merely mean that an initial adaptation to pits for both storage and dwelling may not have penetrated so far.

A feature of the surface house that Groube claims as almost universal is the stone hearth. Such hearths are lacking, however, not only from N38/37, but from recognisable surface houses at N38/30 and Hamlins Hill (N42/137), although in the latter case hearths could have been destroyed by later activity on the site. On the present evidence, the stone hearth was not an essential feature of houses in the Auckland area, although it is recorded for Mt. Roskill, suggesting that, as the ethnographic evidence cited by Groube implies, house styles may have varied considerably.

The principal problem in the correct interpretation of N38/37 is understanding the function of the structures. This is fundamental to any elucidation of the settlement pattern or inferences concerning the group of people responsible for the site, although external comparisons can be based purely on structural evidence.

The most telling argument against the use of pits for dwellings is the absence of domestic litter in association with many of them. Presence or absence of hearths, even size, appear less certain indicators. In terms of this criterion, the only convincing candidates on this site for consideration as dwellings are the terrace in N-8, and structure B. In both these areas, a sufficient amount of domestic debris occurred to suggest residential rather than other functions. This immediately raised the question of the separation of structure B from the closely similar structures A and C. The possibility of alternate uses of structures appears the most satisfactory explanation for this apparent dichotomy; the possibility that structure B, designed like its fellows as a storage unit, was subsequently converted into a dwelling, must be considered.

The general absence from other structures of domestic litter in primary association, is a major argument for accepting them as storage pits, despite their range in size and form.

Pit 1 is basically a rectangular pit of a kind widely revealed by excavations in the Auckland province, namely a rectangular pit with a single central line of postholes and no buttresses. The curious drainage system is probably unique, although the concept of a curving floor drain running out through a slit in the downslope longitudinal wall near one end recalls pits at Sarah's Gully (Golson 1959: plate I). Pit 2, from the portion of it uncovered, appears to belong to the same general type, although it is smaller and shallower. Two central postholes are probably part of a row of three. In addition to the lack of litter on the floor, this pit is almost certainly too small for a dwelling. The nature and function of pit 3 is slightly more obscure as no postholes at all were found in the excavated portion. The pit was not completely excavated, however, while it is quite possible that a posthole dug not into natural clay, but into the underlying fill of pit 1 was missed. The size and shape of pit 3 also tend to suggest a storage function.

Storage can less certainly be inferred for pits 5 and 6. In the case of pit 6, so small an area was excavated that details of the pit's size and superstructure are lacking. The limited evidence available, however, suggests that this pit may have

close parallels with pits 2 and 3. Pit 5 is deeper than the other pits and the excavated portion lacks postholes. But the pit is deep enough for a flat roof to provide adequate covering. This pit has the most pronounced buttress of the structures at this site, although vestigial buttresses appear at one end of structures C and A. An end buttress was also found in the pit at N38/30, and the feature seems widespread in the Auckland Province (cf. Shawcross 1966, pp. 66-67). The drain running out through a tunnel in one corner is known from some other sites in heavy clay, notably Taniwha Pa and the small site N30/3 at Harataonga Bay, Great Barrier Island.

Pit 4 is by far the largest pit in the site, and on the basis of area could well be considered a house. The absence of domestic litter again militates against this interpretation, while the smaller postholes possibly belonged to a rack of some kind. Again, a storage function, possibly of a rather different order from the other pits, is indicated.

The most difficult features to interpret are structures A, B and C. Structure D is too vestigial for an interpretation to be attempted. The similarities between the three former structures are several, but at the same time their differences are noticeable. Structure A is similar in depth to pits 2, 3 and 6, but structures B and C are shallower, although equally shallow pits in other areas have been acceptably interpreted as storage pits. The three structures provide an interesting example of variability, for they may be presumed to be contemporary, and constructed by people who shared the same building tradition. Yet, there are more points of difference than similarity, illustrating the dangers of comparing similarities between structures from widely separated sites on the basis of small samples.

The concept of the pit dwelling aligned with storage pit, first suggested for Skipper's Ridge and Kauri Point, dies hard. The temptation to interpret these three shallower structures as house sites aligned with deeper, less elaborate storage pits is strong. Only structure B, however, contained on its floor the sort of debris to be expected on a house floor, and it seems far more likely that all three structures were designed as storage pits, and one was subsequently converted into a dwelling.

If pit 1 is interpreted as a storage pit, we may assume that the initial use of this site was by an agricultural group. At this stage, as far as is known, the site was purely a storage area, and may not have been inhabited at all. Throughout the remainder of its history, however, it appears to have served both domestic and storage functions.

The exact constitution of the site at any one time must be in doubt. The maximum number of structures in use at a time would be three and probably four pairs, namely structures A, B, C and pits 2, 3, 5, plus pit 6 and its inferred companion. If these are all storage pits and contemporary, the reasons for their internal differences are difficult to explain. Moreover, the location of houses to accommodate the people who built the pits and left the cooking and other debris scattered around is rather a problem. The terrace probably accommodated a flimsy structure, and others could have existed in the area of pit 4 and around the fringes of the site. Under these circumstances, although planning is evident in the general layout of the site, separate domestic units within it cannot be identified; rather the domestic, communal and

probably economic units, while the site was occupied, appear to coincide. This situation is in marked contrast to that observed at N38/30, where a minimal domestic unit could be clearly identified.

If pit 4 is also assigned to this time, it must be viewed as a communal house or store, of a different order than the other pits; if it is later, perhaps contemporary with the re-use of structure B, it may indicate a change in the composition of the group occupying the site, or a change in attitude towards storage techniques.

Concurrent with the dispute about the function of pits, a doubt has developed concerning the usefulness of pits for typological analysis (Shawcross 1966, Terrell 1965). It has become increasingly clear that they are too variable to be used in far-reaching comparisons. On the other hand, there have been few sustained attempts to document their range within a small defined area from the results of a number of excavated sites. The investigation of New Zealand prehistory has now reached a stage where the need for well-documented sequences from small areas has become increasingly apparent. While general comparisons with sites far from Motutapu are interesting, it will be more important to compare the results of this site and N38/30 with results from other sites in the immediate area, and endeavour to build up some kind of relative time scale in which these sites can be placed. It is hoped that such a time scale can be provided by the use of both obsidian and radiocarbon dating methods. The presence of floor drains running into sumps or tunnels, and end buttresses, together with the central posthole pattern are features known from other sites, and may eventually prove to be significant. Drains, however, can only be expected under certain conditions, and care must be taken to compare pits dug in similar soils before pondering too deeply the differences and similarities between pits in widely differing bedrocks.

The age of this site, and its temporal relationship to other excavated sites on Motutapu are not yet known. The limited material culture recovered is not convincingly Archaic; nor is it as uncompromisingly Classic as that recovered from sites such as Waioneke at South Kaipara or various Waikato sites. It could well be assigned to a Motutapu Aspect of an Early or Proto Maori phase. The economy of the group occupying the site, however, is typical of what we know of Classic Maori, being apparently dependent on agriculture and fishing. The use of predominantly local rock, but access to two sources of obsidian, also suggest a proto Maori phase.

If, as Golson and Green suggest, Motutapu was a rather "backward" area, the site could still be a very late one. The likelihood that it was occupied during the latter part of the sequence recorded from Pig Bay and the Sunde Site seems strong. Until the full details of the former site, particularly, are available it is impossible to say what similarities in material culture, if any, exist between the two sites.

N38/37 can justifiably be regarded as an undefended settlement. As it is based upon storage pits, the principal occupation may have been only one season's duration. The extent to which the occupants exploited a far larger territory than Motutapu cannot be guessed until further excavations in surrounding areas are undertaken, although it is worth noting that the pits excavated at Alberon Park and Hamlins Hill do not appear to be the work of exactly the same group. Similarly, until excavation of a fortified site on Motutapu is undertaken, the relationship between defended and

undefended sites must be doubtful. I am convinced, however, that questions of settlement pattern and sequence in the prehistory of the Auckland Province will now be solved only by continuing and intensive investigation of numbers of sites in selected areas.

CONCLUSIONS

The excavation justified the recording of vague surface features on Motutapu Island as archaeological sites, but revealed that pits and terraces can present identical surface evidence. This site, which had been recorded as "pits/terraces", was shown to be an undefended settlement containing extensive remains of cooking and working, as well as food storage. It is thus most comparable to Skipper's Ridge¹, at Opito, where cultural debris was also associated with pits, rather than the Kauri Point "Undefended Settlement", or the nearer Alberon Park site, where occupation debris was lacking.

Several successive occupations were in evidence, probably each of only one season's duration. A number of subsurface structures in patterned arrangement are interpreted as storage pits, although one appears to have been subsequently used as a dwelling. Otherwise, evidence of house structures is very slight, and they are presumed to have been insubstantial. The group occupying the site was larger than a nuclear family, but appears to have constituted a domestic unit, in so far as there was a single common cooking area. Nonetheless, the group involved was significantly larger than that responsible for the domestic unit at N38/30, or the storage component at Alberon Park.

Until an indication of the age of the site is available, its relationship to other sites is uncertain. On cultural grounds, it is assigned to a Motutapu Aspect of Early Maori Phase, recognising that this may be later in time than Classic Maori in some other areas.

ACKNOWLEDGEMENTS

The excavations on Motutapu were made possible by the interest and co-operation of the Lands and Survey Department, particularly the Commissioner of Crown Lands, Auckland, and the Supervisor of Land Development, Whangarei. The Farm Manager on Motutapu and his staff were also co-operative. I am grateful to all who took part in the excavation, and those who arranged the purchase and dispatch of supplies from Auckland. Above all, I am grateful to Anne Leahy who organised the camp as well as directing the second excavation.

¹ Here, I am referring to the site, Skippers Ridge I, excavated by Parker, rather than that which Bellwood recently excavated and designated Skippers Ridge II.

REFERENCES

BROTHERS, R. N. & J. GOLSON

1959. Geological and archaeological interpretation of a section in Rangitoto ash on Motutapu Island, Auckland. *N.Z. Jl Geol. Geophys.* 2(3): 569-577.

DUFF, R. S.

1959. Neolithic adzes of eastern Polynesia. In FREEMAN, J. D. & W. R. GEDDES (editors) *Anthropology in the South Seas* . . . pp. 121-147. Thomas Avery, New Plymouth. 267 pp.

GOLSON, J.

1959. Culture change in prehistoric New Zealand. In FREEMAN, J. D. & W. R. GEDDES (editors) *Anthropology in the South Seas* . . . pp. 29-74. Thomas Avery, New Plymouth. 267 pp.
1961. Investigations at Kauri Point, Katikati, western Bay of Plenty. 3. The excavations. *N.Z. Arch. Assoc. Newsletter* 4(2): 18-29.

GREEN, R. C.

- 1963a. *A review of the prehistoric sequence of the Auckland Province*. Publication of the Auckland Archaeological Society no. 1 and the New Zealand Archaeological Association no. 2. 114 pp.
- 1963b. An undefended settlement at Kauri Point, Tauranga District. *Historical Review* 11(3): 143-156.

GROUBE, L. M.

1965. *Settlement patterns in New Zealand prehistory*. University of Otago Anthropology Department occasional papers in Archaeology 1. ca. 100 pp. (paging varies).

PARKER, R. H.

1960. Reconnaissance at Skipper's Ridge. *N.Z. Arch. Assoc. Newsletter* 3(2): 39-41.
1962. Aspect and phase on Skipper's Ridge (Opito) and Kumara-Kaiamo (Urenui). *N.Z. Arch. Assoc. Newsletter* 5(4): 222-232.

SHAWCROSS, F. W.

- 1964a. Archaeological investigations at Ongari Point, Katikati, Bay of Plenty. *N.Z. Arch. Assoc. Newsletter* 7(2): 79-98.
- 1964b. Stone flake industries in New Zealand. *J. Polynes. Soc.* 73(1): 7-25.
1966. Ongari Point—second season. *N.Z. Arch. Assoc. Newsletter* 9(2): 53-71.

TERRELL, J.

1965. Limitations on archaeology in New Zealand. *N.Z. Arch. Assoc. Newsletter* 8(4): 125-130.